

CLAIMS

What is claimed is:

1. A packaged electronic device comprising:
a die; and
5 a lead frame, the die being located with respect to the lead frame at a first die mounting location of the lead frame, the lead frame comprising:
a first flag structure having a first side, the first side including a portion of the die mounting location;
a second flag structure having a first side, the first side of the second flag
10 structure including a portion of the die mounting location; and
a structure connected to the first flag structure and to the second flag structure, the structure including a bend portion, the structure including at least a portion located between the first flag structure and the second flag structure.
- 15 2. The packaged electronic device of claim 1 wherein the structure has a form to provide for movement of the first flag structure with respect to the second flag structure, wherein the movement includes lateral movement of the first flag structure with respect to the second flag structure in a direction extending between the first flag structure and the second flag structure.
- 20 3. The packaged electronic device of claim 1 wherein the structure is integrally connected to the first flag structure and to the second flag structure.
4. The packaged electronic device of claim 1 wherein the bend portion includes a first portion connected to the first flag structure, and a second portion extending from the first portion.
- 25 5. The packaged electronic device of claim 4 wherein the second portion extends from the first portion at generally a 90 degree angle.

6. The packaged electronic device of claim 5 wherein the structure includes a third portion extending between the second portion and the second flag structure.
7. The packaged electronic device of claim 6 wherein the third portion extends from the second portion at generally a 90 degree angle.
- 5 8. The packaged electronic device of claim 1 wherein a bend of the bend portion is generally 90 degrees.
9. The packaged electronic device of claim 1 wherein the die includes a transducer.
10. The packaged electronic device of claim 1 wherein the die is attached to the first side of the first flag structure and to the first side of the second flag structure at the die mounting
10 location.
11. The packaged electronic device of claim 1 wherein at least a portion of the die and at least a portion of the lead frame is encapsulated with an encapsulant.
12. The packaged electronic device of claim 1 wherein the lead frame further comprises:
15 a third flag structure having a first side, the first side including a portion of the die mounting location;
a second structure connected to the first flag structure and to the third flag structure, the second structure including a second bend portion, at least a portion of the second structure located between the first flag structure and the third flag structure.
- 20 13. The packaged electronic device of claim 12 further comprising:
a fourth flag structure having a first side, the first side of the fourth flag structure including a portion of the die mounting location;
a third structure connected to the second flag structure and to the fourth flag structure, the third structure including a third bend portion, the third structure including at
25 least a portion located between the second flag structure and the fourth flag structure.

14. The packaged electronic device of claim 13 further comprising:
a fourth structure connected the third flag structure and to the fourth flag structure, the
fourth structure including a fourth bend portion, the fourth structure including at
least a portion located between the third flag structure and the fourth flag
structure.
15. The packaged electronic device of claim 1 wherein the lead frame further comprises:
a third flag structure having a first side, the first side including a portion of
the die mounting location;
a fourth flag structure having a first side, the first side of the fourth flag
including a portion of the die mounting location;
a second structure connected to the third flag structure and to the fourth flag
structure, the second structure including a second bend portion, at least
a portion of the second structure located between the third flag
structure and the fourth flag structure.
16. The packaged electronic device of claim 1 wherein the structure is generally located
in a plane defined on a first side by the first side of the first flag structure and the first side of
the second flag structure, wherein the plane is defined on a second side by a second side of
the first flag structure and a second side of the second flag structure, the second side of the
first flag structure is an opposing side of the first side of the first flag structure, the second
side of the second flag structure is an opposing side to the first side of the second flag
structure.
17. The lead frame of claim 1 wherein at least a portion of the structure has generally an
“S” form.

18. The packaged electronic device of claim 1 further comprising:
a second die, the second die being located with respect to the lead frame at a second
die mounting location of the lead frame, the lead frame includes a third flag
structure having a first side including at least a portion of the second die
5 mounting location,
wherein the lead frame includes a second structure connected to the first flag structure
and to the third flag structure, the second structure including a second bend
portion, the second structure including at least a portion located between the first
flag structure and the third flag structure.
- 10 19. The packaged electronic device of claim 18 wherein the die includes a transducer and
the second die includes a signal controller operably coupled to the transducer.
20. An automobile including the packaged electronic device of claim 1.
21. The packaged electronic device of claim 1 further comprising:
a second die located over the die in a stacked die configuration.
- 15 22. The packaged electronic device of claim 1 wherein the packaged electronic device is
characterized as a Quad Flat No-Leads (QFN) packaged electronic device
- 20 23. A lead frame for a packaged electronic device, the lead frame comprising:
a first flag structure having a first side, the first side including a portion of a
die mounting location;
a second flag structure having a first side, the first side of the second flag
structure including a portion of the die mounting location;
a structure connected to the first flag structure and to the second flag
structure, the structure including a bend portion, the structure including
at least a portion located between the first flag structure and the second
25 flag structure.
24. The lead frame of claim 23 wherein at least a portion of the structure has generally an
“S” form.

25. The lead frame of claim 23 wherein the first flag structure has a first edge, the structure extending from the first edge, the second flag structure has a second edge, the structure extending from the second edge, wherein the first edge is generally faces the second edge.

5 26. The lead frame of claim 23 wherein:

the first flag structure is of a first thickness between the first side and a second side of the first flag structure, the second side of the first flag structure opposing the first side;

10 the second flag structure is of the first thickness between the first side and a second side of the second flag structure, the second side of the second flag structure opposing the first side;

at least a portion of the structure is of a second thickness between a first side of the structure and the second side of the structure, the first side of the structure is generally parallel to the first side of the first flag structure and the first side of the second flag structure, and the second side of the structure is generally parallel to the second side of the first flag structure and the second side of the second flag structure, wherein the second thickness is less than the first thickness.

20 27. An apparatus comprising:

a die;

a lead frame, the die being located with respect to the lead frame at a first die mounting location of the lead frame, the lead frame comprising:

25 a first flag structure having a first side, the first side including a portion of the die mounting location;

a second flag structure having a first side, the first side of the second flag structure including a portion of the die mounting location; and

30 a structure connected to the first flag structure and to the second flag structure, the structure including a bend portion, the structure including at least a portion located between the first flag structure and the second flag structure; and

an encapsulant, the encapsulant encapsulating at least a portion of the die and at least a portion of the lead frame.

28. The apparatus of claim 27 wherein the die includes a transducer.

29. The apparatus of claim 27 further comprising:

5 a controller, the controller operably coupled to circuitry of the die.

30. The apparatus of claim 27 wherein the apparatus is generally characterized as an automobile.

31. The apparatus of claim 27 wherein the die includes circuitry for an inertial sensor.

32. The apparatus of claim 27 wherein the apparatus is generally characterized as a video
10 game device.